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IN THIS ISSUE:

- Some Philosophical Dimensions
in Educational Research: A SYMPOSIUM
- Test-Giver's Self-Inventory
- Attitudes Toward Extra-Curricular Duties
- Factors in State Educational Development
- Predicting Success in Algebra
- Validating Reactions of Kindergarten Children
- Rorschach Personality Factors and College Achievement



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CONTENTS

Some Philosophical Dimensions . . . A SYMPOSIUM

Introduction, *Arthur P. Coladarci* 50

Educational Research in Values 51
Lawrence G. Thomas

Relevancy in Educational Research 57
A. S. Clayton

The Need for Conceptually Oriented Research 61
W. H. Cowley

Test-Giver's Self-Inventory 67
Anton Thompson

Rorschach Personality Factors and College Achievement 72
Janet E. Blechner and Harold D. Carter

A Method of Validating Reactions of Kindergarten Children
to Storybooks read by Teachers 76
Dan Cappa

Factors for Predicting Success in Beginning Algebra 79
Norman F. Frost and Louis Grant Brandes

Factors Involved in State Educational Development 84
Richard E. Schutz

Attitudes of Elementary-School Teachers Toward
Extra-Curricular Duties 89
William B. Driscoll

Book Reviews 95

Some Philosophical Dimensions In the Improvement of Educational Research

A SYMPOSIUM

Research in Values by *Lawrence G. Thomas*

Relevancy in Educational Research by *A. S. Clayton*

Need for Conceptually Oriented Research by *W. H. Cowley*

Introduction by *Arthur J. Coladarci*

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There is little exaggeration in the observation that educational research is generally suspect with reference to its concerns, loci of operation, procedures, and products. Criticisms approach legion and range from courteous discontent to contemptuous hostility. Assuredly there are many happy exceptions. It is further true that many of the perennial criticisms have little validity and reflect either an uninformed stereotype or an insensitivity to the nature of educational problems. The criticisms do exist, however, and we submit that in large measure they are relevant and demand consideration. Too often, they have been received with unanalyzed rejection or calculated indifference. Some of our number, unfortunately, have reacted to these criticisms by shifting their locus of operation and interest from that of the professional context to that of the more respectable T-maze and reinforcement-extinction schedules.

If educational research is to contribute the professional insights which it purports to offer, the lacunae in present programs for preparing educational research persons must be identified and filled. Many of these lacunae readily can be identified among present contributions to the body of professional knowledge. We suggest, however, that some of the most fundamental present weaknesses are not so obvious and have been noted only infrequently—possibly as a consequence of the unfortunate rejection of educational philosophy in most professional education curricula: (1) the handling of the value questions inevitably involved in educational research, (2) the demonstration of relevancy, and (3) the fallacy of "factualism" in research. Professors A. S. Clayton, W. H. Cowley, and L. G. Thomas, who have been concerned with these matters over a period of many years, were invited to speak on them for this journal. This they do in the three articles following. We feel that they deserve a careful hearing and hope that our readers will comply with their particular request for reaction and evaluation.

Educational Research in Values

LAWRENCE G. THOMAS

Values are recent entrants into the domain of scientific investigation. Not so long ago, it was generally conceded that questions of fact belonged to science but that questions of value belonged exclusively to philosophy. Many philosophers were eager to maintain this distinction, partly from the misgivings, perhaps, that the totalitarian sweep of science might question and destroy some cherished values; and many scientists insisted on the distinction to keep their fields pure and objective.

A notable crossing of this line occurred, however, with the appearance of the interest inventories shortly after World War I. There was some question whether simple interests really qualified as values or not, but the test builders rightly took the position that the possession of an interest was still a fact, whatever else it was. As long as they confined themselves to identifying and describing the interests, without asserting that one was good and another bad, or that one was better and another worse, they felt confident that they were remaining scientific. Soon attitudes became a topic for research. Differences in attitudes were identified, quantified, and scaled. Before long, researchers began to apply the term "values" to these interests, attitudes, and preferences of people, and the scientific investigation of values as a kind of fact exhibited by persons became well established.

Information on wants and interests is often useful to have, particularly in locating areas of consensus or differences in viewpoint. What kind of curriculum do the citizens want? What kind of services do principals want supervisors to perform? What content do college professors want in 11th grade history? Such wants and interests are empirical facts. They can be ascertained by a variety of techniques, ranging from direct inquiry to inferences from thematic projections.

Calling such facts values, however, has created several difficulties in interpretation and communication. In the first place, the results of this kind of inquiry show only what is desired, not what is desirable; only what is wanted, not what is worth wanting. Practically everyone has had the experience of wanting something which he then decides, upon reflection,

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is not worth having. In such instances, the *value* is not the object of immediate desire but the object worth having after critical reflection. This distinction is commonly expressed in such pairs of terms as desired and desirable, enjoyed and enjoyable, loved and lovable, satisfying and satisfactory. To apply the term *value* to both kinds of wants is to blur an important difference and to invite misrepresentation.

A second difficulty arising from this practice is the temptation to commit what philosophers call "the positivistic fallacy." In essence, it consists of equating the desired with the desirable. Whatever is wanted is therefore worth wanting. Or, in another form, whatever we have now (if liked) is therefore good to have. Examples of this fallacy in education are easily found. For instance, how much knowledge of American history is it good for 11th graders to have? A first step toward an answer is to find out how much they now know, but there the value inquiry usually stops. The average is then commonly taken as the standard of the good. It is held good for this class to know as much history as the average of all 11th graders. Indeed, the term "norm," which once meant an ideal standard to be approached, now means only the average or the typical in the interpretation of test results.

Early psychological investigations of interests and attitudes did not bother with this distinction between the desired and the desirable. The gross concern was to locate and quantify the motivations to action expressed by various groups of persons. The researchers appeared to believe that only by regarding one interest as "good" as another could they remain objective and detached in their investigations. This policy is sound insofar as it expresses neutrality toward the *content* of the interest—i.e., whether it be poker or poetry, caroling or wrestling. But it is highly questionable when it concerns the *quality* of the interest. Some interests and attitudes may be thoughtless escapes. Others may be compulsive addictions. Some may be gay impulses of the hour. Others may be conditioned prejudices. Still others may be the sober fruit of carefully criticized experience. It makes a difference whether an instance of human behavior is motivated by caprice, prejudice, or considered values, and the difference concerns not only therapists and teachers but also psychologists and other behavioral scientists. The development of a systematic understanding of human behavior cannot proceed far without identifying the quality as well as the content of its motivations.

Until recently, the identification of the quality of motivation has been considered exclusively a clinical problem. It is now time for philosophers and scientists to cooperate still further in defining the distinctive qualities of motivation, especially the distinction between the desired and the desirable, between the wanted and the valuable. Encouragingly enough, there is increasing recognition among the theorists in the social sciences that this distinction needs to be preserved. However, its preservation does

not mean that scientific research should be confined merely to the area of desires and wants. Instead, a recent book in sociological theory has clearly argued that the *values* held by a person or a group can also be researched, and should be if we are to understand human behavior.* Such research in the problems of education has often been attempted, but seldom systematically and rigorously. Hence, some of the major considerations involved in the empirical investigation of values are worth discussing here.

1. First is an operational definition of values. Something is considered valuable and desirable (not merely desired) when it is wanted in the light of perceived relationships to other things of interest. The value judgment focuses, not on the objects of interest themselves, but on the perceived relations among them. The most common kind of perceived relationships is consequential or extrinsic—i.e., an object is wanted mainly for what it will lead to. A vitamin pill is desirable if it promotes health. A budget is desirable if it helps keep expenses within income. A certain kind of school building is desirable if it maximizes the learning opportunities for children. But another kind of perceived relationships is supportive or intrinsic—i.e., an object is wanted, not primarily because of what it will lead to, but because it is worth enjoying in the light of its surrounding connections with other interests. Thus, a school building achieves intrinsic value if it is appreciated in the light of its economical cost, the ease of its upkeep, the enhanced community interest developed through its planning, its harmonious use of technological advances, and so on. In this instance, the school building represents the consummatory focal point of a number of associated interests.

2. This definition of a value judgment can be broken down for purposes of research into three major questions of fact. The first asks, what are the relationships, perceived by the person or the group, which make this object appear worth having or enjoying? This question has both a subjective and an objective aspect. Subjectively, only those relationships perceived and anticipated appreciatively by the person or group are relevant to the research. Objectively, the relationships in question are not merely private feelings but public, specifiable connections. For example, the relationship between citizen participation in the planning of a new school and increased community interest in the other problems of education is not relevant to value research unless some of the participants are interested in this connection, but the relationship itself is open to empirical investigation and testing.

The second major question of fact is whether the perceived relationships actually work or function as the subjects believe they do or will. Does citizen participation in planning actually promote community interest in

* Talcott Parsons and Edward Shils (eds.), *Toward A General Theory of Action* (Cambridge: Harvard University Press, 1951). See especially Part II, Sec. 3, and Part IV, Sec. 2.

other educational problems? Do book reports actually promote enthusiasm for wider reading? Does a required course in American history actually develop the habit of appraising contemporary political problems in the light of their historical roots? Unless the subjects believe these relationships hold as the rationale of their value judgments, these presumed connections are not relevant to value research. But unless these relationships work out in fact approximately as expected, the value judgments do not become actual or experienced values. They remain merely prejudices or unfounded convictions.

The third question of fact is how much the object at hand, when its perceived relationships are acted upon or tested factually, is actually desired or wanted now in the light of experienced relationships. In other words, has the originally desired object become in fact desirable when the judgments of its worth have been acted upon, experienced, actually known? Some of the relationships will probably be confirmed as expected. Others may be falsified, and still others may appear which were not anticipated but which are related to certain interests of the subjects. Now, how do the subjects feel about citizen participation in school planning, or book reports, or a required course in American history, when the significant relationships (both expected and unexpected) to their other interests have been tested, experienced, known? This third stage of value research seeks, not merely the value judgments, but the tested or established values of the subjects.

3. The next consideration is a frame of reference. These three major questions can be asked meaningfully only within a specific frame of reference. In addition to the usual features of a frame of reference in any social research, investigations of the values held by a person or a group require specific identification of the interests which are to be taken for granted. These, of course, are the interests of the subject or subjects, but it is not necessary to identify *all* of his interests. It is enough to identify those interests which are possibly or conceivably related, in some important as well as functional way, to the desired activity in question. For example, if the activity in question is "required book reports," some related interests held by the teacher might include the children's interest in reading, tempting others to read the same books, keeping the children busy, improving the understanding of what is read, cultivating the interest to remain in school, developing systematic study habits, and the like.

If the research is seeking the common values of a number of persons—perhaps several teachers, the supervisors, the principal, the parents, and even the children—the major interests selected for the frame of reference must be shared by all those involved. This requires making the selected interests quite explicit, probably through operational definitions of what is meant by such expressions as "keeping the children busy" or "improving the understanding of what is read." If clarification through operational definitions does not bring agreement among the persons involved on all the

interests proposed for the frame of reference, some of them may have to be dropped or the subjects divided into two (or more) groups with two frames of reference. In a group of any size, more than one frame of reference is to be expected.

The interests assigned to the frame of reference are not only items upon which a given group agrees, but the worth of these interests is left unchallenged or taken for granted. In the example cited above, an interest in reading or developing systematic study habits would simply be wanted or assumed to be good. As part of the frame of reference, these interests are technically desired rather than desirable. If, at another time, doubt arises as to whether they are desirable (worth desiring) in terms of *their* consequences and associations, then they should become objects of investigation in a new frame of reference of other interests taken for granted.

4. After one or more frames of reference have been achieved, the investigator is ready to select techniques for answering the three major questions of fact pertaining to the group's values. It hardly needs saying that operational definitions are as important in value investigations as in other areas of research. Operational definitions are required for the activity in question—e.g., requiring book reports or teaching 11th grade American history—as well as for its perceived relationships to the items of interest specified in the frame of reference.

The first question of fact concerns the relationships perceived by the subjects between the activity in question and the interests specified in the frame of reference. These relationships may be obtained by direct inquiry, by observation, or by eliciting responses to prepared suggestions. In any case, the critical feature is that subjects accept these perceptions as genuinely their own judgments.

If the research were to stop here, it would reveal only the value *judgments* of the subjects. The information possessed at this point would consist of whether the subjects approved or disapproved of a certain object or activity in the light of certain presumed relations it has to other matters of interest specified in their frame of reference. This is considerably more than the information revealed by the usual interest inventory and attitude scale, and for some purposes it may be enough information, especially when there is little prospect of taking immediate action on these value judgments. But when the purpose is to discover more than the group's reflective attitudes, more than their considered disposition to act in a certain way—to find, in short, their tested commitments, their experienced values—research can not and need not stop here.

Hence, we turn to the second major question of fact in the analysis of values. The problem now is to test the factual accuracy of the perceived relationships. This is not a matter to be referred to the judgment of the subjects, nor even primarily to the judgment of a jury of experts. Empirical evidence and concrete experience are the needs at this point. In many

situations a large part of the evidence may come from the carefully reported experiences of other persons in similar situations. Sometimes it will be feasible to try out the judgments of the subjects in their own situation, either with them as observers or, better yet, with them as participants. The latter possibility calls for the flexible procedures of action research. The great advantage of having the subjects participate in the testing of their own judgments is that they are more likely to undergo unanticipated consequences which are nevertheless related to interests of theirs which may not have been placed originally in the frame of reference. Such experiences often alter one's value judgments, but action research is usually designed to capitalize on shifts of this nature.

The next step is to ask the subjects to review the originally approved (or disapproved) object or activity in the light of the evidence which has been collected concerning its relationships to their other interests specified in the frame of reference. One way of doing this is by interview or questionnaire, in which the request for approval or disapproval is followed by clauses beginning with "if" or "since" and specifying the factual relationships which the activity in question has been found to possess. For instance, one might ask, "Would you approve of this kind of book report at the ninth grade in this type of school if the reports kept the children busy, made most of them detest what they read, reduced the hours spent watching television, increased the ability to identify plot structure and climaxes, and tempted no one else to read the same book?" This phrasing of the question is hypothetical and is appropriate for a questionnaire when the factual relationships to other interests have been tested independently of the experiences of the subjects. When the subjects themselves have been participants in the research and have experienced these consequences of assigning book reports, the appropriate question might be: "To what extent (or under what conditions) do you approve of book reports for such children in this situation?" The "extent" or "conditions" noted should be in specific reference to the experienced relations of book reports to the desired consequences previously named in the frame of reference.

Limited space does not permit further elaboration of particular aspects of this process of empirically investigating values. A complete treatment would certainly include some discussion of the meaning of value relativity (to the frame of reference), the objectivity of values, and handling "should" questions. However, the present article has attempted to establish the importance of discovering the stable, criticized values held by a person or group, instead of merely their unreflective interests or desires, and to show the chief ways in which such values are susceptible to empirical research.

Relevancy in Educational Research

A. S. CLAYTON

Questions about determining what is relevant or irrelevant in a research endeavor have seldom been raised directly or indirectly in textbooks dealing with educational research. In research studies, in general, claims that something is relevant or irrelevant to the study are sometimes stated. But too often these claims are asserted rather than justified. Relevance is treated as though it were obvious or self-evident or as though what is declared to be relevant bore on its face its own credentials.

What is involved in determining the meaning of relevancy in our inquiries? How shall we know what is relevant in any particular study? By what processes may the researcher be able to show that what he thinks is relevant may also be judged to be so by other competent inquirers? This article, exploring rather than answering these questions, will focus on the early or formative aspects of the research undertaking although considerations of relevancy abound in all phases of research.

It seems a truism to observe that research is in a sense an endeavor to find out and eliminate, or at least reduce, that which is irrelevant in a problem. Science has recorded major achievements in many fields by keeping such irrelevancies as prejudice and prejudgment out of the controlled process of self-corrective inquiry. Educational research, seeking to be scientific, has sought the elimination of bias from its inquiries. For the most part, the researcher in designing his problem has tried to avoid value judgments and to "let the facts speak for themselves." Questions concerning the selecting of facts tend to be dealt with incidentally or to be ignored. Judgments involving values intrude knowingly, if at all, only when conclusions and consequences are considered.

It is here suggested that such an attempt to eliminate the irrelevant by a wholesale rejection of value considerations is likely also to eliminate the very means by which the relevance of facts may be appraised.

Further, it is all too possible that what is thus removed from consideration in the early stages of inquiry will reappear covertly in later stages.

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Thus, for instance, in a design to determine the improbability of the null hypothesis one may be unaware of the criteria used to select the content of the series of events being investigated. Or, in interpreting the significance of findings, one may overlook the way in which the initial selection of facts bears on the conclusions drawn from them.

Let us acknowledge, then, that selection of facts is inevitable and that the effect of how this is done pervades the inquiry. Scientific research demands that it should be done openly, available to the inspection of other competent inquirers, rather than covered up in the name of getting rid of value judgments. In short, questions of relevancy pervade educational research; they may be extruded but not eliminated; they are of focal importance in the early aspects of inquiry where hypotheses and data are interdependently being chosen.

A claim that something is relevant in an inquiry should be distinguished from a claim that something is related to the inquiry. When a matter is declared to be related to a study, a rather vague and imprecise connection is asserted. But when something is said to be relevant, one claims a pertinency or directness of bearing which "relatedness" fails to connote. Relevance is achieved by stating in what sense and for what purpose one thing is connected with another. To the extent that this clarification is pursued a claimed relationship becomes a statement of relevance.

As an instance of this distinction consider the section of some doctoral dissertations which is called "Review of Related Research." Frequently this section of a study consists of a series of summaries of studies dealing in general with the area of problems with which the dissertation is concerned. The series of summaries is frequently arranged chronologically, representing in the mind of the researcher a kind of developmental story of what's been happening in this area. The basis for selecting among studies and for arranging them in terms of a purpose, plan, or hypothesis may be noticeably absent in this treatment of "related literature." Relevant studies on the other hand are those selected from a number of related studies on the ground that they so bear upon the plan or hypotheses of a problem that they may not be ignored without distorting the problem. It follows that the quality of research is to a considerable degree influenced by the manner and degree of completeness with which relevant studies are handled.

Problems of relevance arise at other points in carrying on and reporting research. The quality of research is also influenced by the extent to which a wide range of other relevant considerations are brought to bear upon the problem being studied. The relevance of a hypothesis explains and makes manageable otherwise isolated and discordant facts and the reported findings of other research. The fertility of a research endeavor is largely a matter of the growth of new suggestions as research is designed and reported in such form that its contributions may be brought to bear on other problems.

Actually, is not one of the major consequences of productive research the extension of what is seen to be relevant in an area of study and the screening out of the irrelevant?

In the design of a research endeavor one is concerned with constructing such a pattern of inquiry so that which is relevant and irrelevant may be determined. Oversimply stated, there are in general two ways in which the controllable limits of research are determined. One is simply to cut the problem off at some points and be concerned only with what lies between. Thus a study "does not deal with public secondary schools with less than 200 students," or "schools were selected from Indiana, Iowa, and Wisconsin," or "subjects were third grade children." Cutting off thus the limits of the problem area may be justifiable in certain conditions, but in its more general applications, particularly in doctoral research, it might more appropriately be called "defining a problem by amputation."

A second general way to delimit a problem is through clarifying and refining its guiding purposes and hypotheses. In this clarification the context in which the hypotheses are to be tested is specified so that one can see how and why the hypotheses are pertinent to it. In short, delimitation is arrived at through the study of what is relevant to the problem.

The view developed here is that a relevant consideration is one which may not be ignored or minimized without distorting or reducing the matter at hand to something less than its full significance. In order to make the matter clear, consider for a moment what Rudolf Flesch does in *Why Johnny Can't Read*. The instance is cited only to make clear the meaning of relevance through an example in popular writing. Clearly, the referent for "reading" is crucial in the claim involved in the title of Flesch's book. In the early pages the author states, "reading means getting meaning from certain combinations of letters." The next sentence reads, "Teach the child what each letter stands for and he can read."¹ The relevant consideration which is ignored is that the meaning of "reading" has shifted between the two sentences. The first sentence talks about "meaning"; the second, "what each letter stands for." As long as the difference is ignored or reading reduced to pronouncing the printed word correctly without the slightest idea of what the word means,² the relevant considerations about reading are for the most part ignored.

Furthermore, relevance is not only a more precise and determinate specification of what is essential to the full significance of a matter; relevance is always relevance to *something*: a purpose, hypothesis, or plan. Things are not relevant in general. A relevant consideration is one which so modifies the meaning of the hypothesis or purpose that some things are brought focally into the design of the endeavor and others remain peripheral. The

¹ Rudolf Flesch, *Why Johnny Can't Read* (New York, Harper & Brothers, 1955), pp. 2-3.

² *Ibid.*, p. 103.

focus is distinguished from the fringe; the figure, from the ground. In the proposition that the phonetic method guarantees good readers, the meaning of "good reader" is crucial. When reading is nothing but the correct sounding of the letters that constitute words, the focus is not upon the communication of meaning.

To make clear what is meant by showing that some considerations are focally relevant to a study's purpose, plan, or hypothesis, consider what is involved in a rather common procedure in educational research. Say that a study has a purpose which involves differentiating superior and inferior teaching. Such studies typically ask someone, let us say school principals, to discriminate between superior teachers (those who have rapport with pupils, fellow-teachers, parents, and administrators; who like teaching; and whose pupils like going to school) and inferior teachers (those who one feels should resign; who are in trouble with parents, pupils, fellow-teachers; who have low rapport; who are constant trouble-makers).

Have some relevant considerations been brought to bear upon this plan for determining superior teachers? In general: How does one know that the principals are rating the same thing by the same criteria? Are units of equal value being counted, or is counting "superior teachers" like counting grapes, grapefruit, pineapples, and tomatoes leading to a sum total called "fruit"? Is the meaning of "superior teachers" determined by stereotypes or by critically examined value judgments? More concretely: Does an "authoritarian" principal rate superior teaching differently from a "democratic" one? Are principals selecting "superior teachers" or teachers who have their ears attuned to the voices of the right people? Is the principal who values an orderly, quiet, complacent school likely to rate as superior a teacher who does not acquiesce in these values? Is the teacher who believes that children should be challenged by experiences designed to stimulate intellectual growth likely to be discriminated against?

The point is that one simply does not know what to make of research if it does not clarify its handling of relevant questions answers to which are crucial to the basic design of the research.

In order for one to tell what is relevant to a problem it is imperative that the problem be clearly defined. To define a problem is not merely to state the steps in what one is going to do. It is to locate an indeterminacy and to build such a structure of theoretical propositions in regard to it that one's standing ground can be clearly communicated. In the light of this reasoned analysis one can determine which facts are selected and how they are brought to bear upon the disturbance. The statement of the problem should be such that it reveals exactly what is regarded as problematic, the context of reliable and systematic knowledge within which the indeterminacy is found, and the leading hypotheses between which some choice is made as the problem is clarified or resolved. In short, the theoretical

(Continued on Page 66)

The Need For Conceptually Oriented Research in Education

W. H. COWLEY

Science advances not by the accumulation of new facts (a process which may conceivably retard scientific progress) but by the continuous development of new and fruitful concepts.—James Bryant Conant, *Education in a Divided World*, 1948, p. 125.

Is there danger that in the present fusion of pure and applied science the tradition of the investigator interested *only* in the conceptual schemes will be so weakened as to disappear? I am inclined to think so.—James Bryant Conant, "The Role of Science in Our Unique Society," *Science*, January 23, 1948, p. 79.

The two epigraphs above epitomize the point of view sketched in this article. I shall attempt to distinguish between factual and conceptual investigation and to bespeak the paramount importance of the latter. I begin, however, by emphasizing the crucial necessity of the former.

Modern science and *pari passu* the modern world began in the late sixteenth century after the publication in 1543 of Copernicus' heliocentric theory had stimulated Kepler, Galileo, and others to look to nature rather than to the writings of Aristotle, Averroes, and other embalmed scientific authorities. Thus commenced the scientific revolution whose doctrine Francis Bacon stated the year after Galileo had made his momentous study of falling bodies:

Men commonly take a view of nature as from a remote eminence, and are too much amused with generalities: whereas, if they would descend, and approach nearer to particulars, and more exactly and considerately examine into things themselves, they might make more solid and useful discoveries.—*The Advancement of Learning*, 1605, Fourth Book, Chapter Two.

Galileo, Bacon, and their fellow factualists soon made bitter enemies among the dominant conceptualists.* Everyone knows about Galileo's

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* Those who stress facts usually go by the name of empiricists, and those who concentrate upon ideas have long been called rationalists. Because of the ambiguity of these terms, I have come to call the former factualists and the latter conceptualists.

troubles with Cardinal Bellarmine and his associates, but his difficulties with his academic colleagues and other religiously neutral savants better illuminate the crisis within science that the factualists caused.

On the night of January 7, 1610 Galileo's self-manufactured telescope focused upon Jupiter and its hitherto unknown satellites. After further observations he concluded that he had made a portentous discovery, and he published his findings. Then fury broke loose. Some of the learned men to whom he sent copies of his monograph acclaimed his discovery, but "the Aristotelians were furious."¹ Typical of his angry critics was his colleague at the University of Padua, Professor Jules Libri, who at once rejected such "absurdities" and refused to look through Galileo's telescope. Aristotle had made no mention of Jupiter's satellites, and *ipso facto* it had none. Professor Francesco Sizzi of the University of Florence had the same attitude and in 1611 wrote:

There are seven windows given to animals in the domicile of the head, through which the air is admitted to the tabernacle of the body, to enlighten, to warm, and to nourish it. What are these parts of the microcosmos? Two nostrils, two eyes, two ears, and a mouth. So in the heavens, as in a microcosmos, there are two favorable stars, two unpropitious, two luminaries, and Mercury undecided and indifferent. From this and other similarities in nature, such as the seven metals, etc., which it were too tedious to enumerate, we gather that the number of planets is necessarily seven. Moreover, these satellites of Jupiter are invisible to the naked eye, and therefore can exercise no influence on the earth, and therefore would be useless, and therefore do not exist.²

Need the point be labored that the factualists soon routed the medieval conceptualists? During the Middle Ages the discovery of new facts had all but ceased, the medieval man being indifferent, in Rashdall's words, "to facts, the facts about external nature, the facts of history, and the facts of life."³ The Fact, however, came to triumph over the Word; and by the nineteenth century it had become so victorious that some scientists and most laymen came to think of science as essentially the accumulation of more and ever more facts. "I am interested only in facts," snarled the famous Harvard philologist, George Lyman Kittredge, to a graduate student who proposed an interpretive doctoral dissertation;⁴ and graduate students in all departments throughout the universities of the United States early learned that by a "contribution to knowledge" their mentors almost always meant "to grind out," as William James expressed it, "some little pepper-corn of new truth" even though it be insignificant if not also useless.⁵

1. Fahie, J. J., *Galileo, His Life and Work*, 1903, p. 101.

2. *Ibid.*, p. 103.

3. Rashdall, Hastings, *The Universities of Europe in the Middle Ages*, 1936 edition, 3:454.

4. Sherman, Stuart, "Professor Kittredge and the Teaching of English," *The Nation*, Sept. 8, 1913, p. 229.

5. James, William, *Talks to Teachers on Psychology*, 1899, p. 32.

The best scientific minds never limited science to facts alone, but many lesser scientists clearly have and do. In any case, a reaction has set in, and a number of recent definitions of science either declare that facts are "not science" or fail to mention them as part of science. Illustrative of the first of these two varieties of recent definitions is the following statement of Edwin R. Guthrie in his presidential address to the American Psychological Association in 1945:

Collections of facts are not science. They are the material out of which science can grow, but they are only the raw material of science, and sometimes they are not even that.—"Psychological Fact and Psychological Theory," *Psychological Bulletin*, January, 1946, p. 2.

More recently Conant has proposed a definition of the second variety, a definition which makes no reference either to facts or to knowledge:

My definition of science is, therefore, somewhat as follows: Science is an interconnected series of concepts and conceptual schemes that have developed as a result of experimentation and observation and are fruitful of further experimentation and observations. In this definition the emphasis is on the word "fruitful." Science is a speculative enterprise.—*Science and Common Sense*, 1951, p. 25.

Such disjunctive definitions as these have resulted, it would seem, from the excessive preoccupation of investigators with fact; but in my judgment they undervalue the inevitable place of facts in all "concepts and conceptual schemes." Science can properly be defined, I suggest, only by including both its factual and conceptual elements. The eminent historian and rationalizer of science (and, incidentally, the inventor of the words *scientist* and *physicist*), William Whewell of Cambridge, provided for them both in his 1847 definition:

When our conceptions are clear and distinct, when our facts are certain and sufficiently numerous, and when the conceptions, being suited to the nature of the facts, are applied to them so as to produce an exact and universal accordance, we attain knowledge of a precise and comprehensive kind, which we may term *Science*.—*The Philosophy of the Inductive Sciences*, 1847, 2:3.

I know of no more felicitous definition of science than this, and in what follows I shall try to show how I apply it to my own area of interest—educational research.

Early in the nineteenth century occasional writers referred to "the science of education,"⁶ but not until toward the end of the century did G. Stanley Hall at Clark University and Earl Barnes at Stanford initiate the child-study movement. Soon there followed J. M. Rice's history-making study of spelling and the investigations of Judd, Thorndike, and scores of others. Beginning about 1900 educational research began to boom and to produce such serviceable findings that facts drove much windy theory into oblivion.

6. For example, see "Two Reports of the Faculty of Amherst College to the Board of Trustees," 1827, pp. 4, 9, 16, 18.

In time it became apparent, however, that most educational investigators were giving attention to only half of the scientific enterprise, to wit, to the collection of facts alone, their conceptual organization and appraisal being largely bypassed. Chaos followed, and a few valiant educationists had the courage to say so. Just before his death in 1945, for example, Henry C. Morrison wrote privately to one of his former students:

The erection of a movement for the scientific study of education started well, more than fifty years ago, but after a generation or so the thing got more and more chaotic and is now for the most part merely a mess. I do not know whether anything can be done to clean it up. It is certainly not a university discipline or anything like it.—Quoted by Lindley J. Stiles, *The Journal of Higher Education*, October, 1945, p. 392.

In this statement Morrison expressed forcefully what John Dewey had been saying politely but less clearly in many of his writings. Throughout his career he insisted that facts must be associated with concepts; and, indeed, his basic tenets developed in protest against their separation. Thus in the early 1930's he wrote:

On the whole at the present time the conceptualistic methods of the rationalist school find little favor in the social sciences. The latter are devoted largely to empirical fact finding and to the attempt to arrive at social laws "inductively." Abstinence from general ideas is accompanied, however, by remoteness of social method from guidance of social, legal and economic phenomena. The split is called tragic because it is a sign of failure to find a generally accepted method which will do in control of social forces what scientific method has accomplished in control of physical energies. . . . Experimental logic [initiated by Peirce and carried forward by James and himself] would resolve the controversies, now four centuries old, between reason and sense experience by making both concepts and fact elements . . . instruments of intelligently controlled action.—"Logic," in *Encyclopedia of the Social Sciences*, 9: 602-603.

Despite the protests of Dewey, Morrison, and others against the disjunction between facts and concept, it continues to dominate social science research in general and educational research in particular. Some of us however, are attempting to stop the trend; and I briefly describe my own activities in this direction.

By factual research I mean adding new facts to the store of knowledge, facts which enlarge upon present knowledge or which open up new, unmined veins. In my own doctoral dissertation, for instance, I sought by psychological tests to discover whether or not acknowledged leaders in three situations differed from their followers and from one another and, if so, how. I added thereby a snippet or two of new fact. Most doctoral dissertations in all subjects similarly seek new knowledge. Conceptual investigation differs from such studies in that it either organizes facts already in hand or critically appraises existing concepts. I illustrate both of these varieties of conceptual research by citing the work of my graduate students.

Of the more than two score dissertations written under my direction since 1945, fourteen have been concerned with the structuring of the functions of American colleges and universities. This series got under way after

I had gathered and arranged facts and opinions which identified the functions. My students then investigated various problems that came to the surface in my initiating studies. One, for example, compiled all the significant criticisms of graduate schools of arts and sciences between 1900 and 1945 and showed among other things that almost all of the criticisms of today were being made in 1900, that widespread opinion has long prevailed that the graduate schools underprivilege the function of preparing teachers—especially teachers of undergraduates—and that, despite the demands of powerful leaders that the graduate schools substantially reorganize their procedures, they apathetically and insensibly continue in their established routines. This study brought to light neglected facts, but it added no new ones. It dealt primarily with concepts.

Another student ferreted out and audited the chief proposals made during the nineteenth century bearing upon how universities should be structured in order best to perform their expanding teaching and research functions. Another did the same for the twentieth century. Another studied the efforts made between 1924 and 1936 by several influential educational associations (the Association of American Universities, the American Association of University Professors, the American College Association, etc.) toward the improvement of college teaching. These dissertations and the others in the series had no hypotheses and fabricated no new facts. Rather, their writers assayed existing knowledge and fashioned it into conceptual wholes. The worth of these studies lies in their contributions to a clearer understanding of the problem of structuring the functions of American colleges and universities. Their facts—all old—have significance only in relationship to the concepts they have discovered or clarified.

The second variety of conceptual investigation deals with concepts directly. For example, one student has explored the validity of the use by various historians and educationists of the distinction between Jacksonianism and Jeffersonianism and, incidentally, found it invalid when applied to education. Another has scrutinized the structure-function conceptions of William Rainey Harper, another those of Henry Philip Tappen, another those of Robert Maynard Hutchins. The studies of this second class all constitute critical appraisals of existing concepts and deal with facts only as they relate to concepts.

Conceptual studies of these two and other kinds have always been undertaken in departments of education, but not infrequently those who insist that every investigation must begin with an hypothesis declare them not to be research. I have the impression, however, that this attitude changes and that conceptual studies grow in number and improve in quality. In any case I verily believe that conceptual investigation needs greater emphasis and higher status than it has had. What MacIver wrote a quarter of a century ago about research in the social sciences continues to apply to them and, even more so, to research in education:

Today the materials for our building are better and more plentiful—and here we give grateful thanks to the quantitative workers. The bricks and the mortar, the steel and the lumber, are being prepared. The bricklayers and the hodmen, the masons and the carpenters, the riveters and all the rest are ready. Now we must pray that the architects also arrive.... —*A Quarter of a Century of Learning, 1904-1929*, edited by Dixon Ryan Fox, 1931, p. 91.

Professor MacIver's metaphor seems to imply that conceptualists are more important than factualists, but clearly each depends upon and hence needs the other. The medieval conceptualists ignored and even sneered at the objective facts of nature and thereby impeded the intellectual development of Europe; and present-day factualists, Mr. Conant and others believe, may similarly be blocking intellectual advance. Happily, the awareness spreads that neither the factualist nor the conceptualist can do sound work without the help of the other.

Relevancy . . . (Continued from Page 60)

context of the problem should be made explicit in order that one can determine what bears focally upon it.

In defining a problem, as distinct from carrying on a task, preference and choice is basic. To choose or to prefer is to value. Since some ways of handling values have been found to be more scholarly and fruitful than others, the researcher in education should build his competencies well in the value-centered disciplines. Focal in this preparation is the study of philosophy of education when that study is conceived as the use of philosophical skills, habits, and sensitivities in the handling of educational questions. In this sense philosophy of education has an important contribution to make to educational research.

The Thirty-Fourth Annual Meeting of the California Educational Research Association will involve more State-wide participation than any meeting of this organization in recent years. Advanced registrations indicate that a large contingent from south of the Tehachapi will be present. A total of forty-eight papers were considered at a recent meeting of the executive committee, representing all major colleges and universities in the State as well as most of the larger school districts. General session speakers will include Professor T. R. McConnell, Chief Consultant for the Restudy of Higher Education in California, who will talk about some aspects of his work in this field. The meeting will take place in the evening of Friday, March 23, and all day Saturday, March 24, 1956, at the Hacienda Hotel, Fresno, California. Reservations should be made at once with Miss Hazel Lewis, Secretary of the Association, who is director of Research for the Stockton Unified School District (324 N. San Joaquin St., Stockton 2).

Test-Giver's Self-Inventory

ANTON THOMPSON

"There is a curious fallacy in the contemporary attitude toward the administration and scoring of group tests as compared with individual tests. It is doubtful if any educational institution would trust the administration and scoring of the individual Stanford-Binet Scale to anyone other than a trained psychometrician, but there is a rather general impression among school people that almost anyone can administer and score a group test if only he has a manual at hand. As a matter of fact, however, the administration of a group test to a class of pupils in one sense is a far more exacting procedure than the giving of an individual test to one pupil. The routine is more rigid and the penalty for error is multiplied by the number of individuals in the group."

—Arthur E. Traxler in *Educational Measurement* (E. F. Lindquist, editor), 1951, page 333.

A. BEFORE Tests Are Given

- | Yes | ? | No | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. In scheduling testing periods, do I avoid giving tests immediately after a vacation or on the last day before a vacation? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. In scheduling tests, do I try to avoid giving tests in a period immediately following a strenuous physical education activity? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Have I ever taken the test myself? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Before attempting to give the test, do I study the content of the test manual? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. If I am giving tests for a teacher, do I ask the teacher to serve as a proctor while I administer the tests? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Before the tests are given, do I make clear to the room teacher the importance of having the pupils in a state of "readiness" for the testing period? (Absence of hysteria or undue |

The inventory devised by Dr. Thompson is a "good discipline" for educational research workers. It has also been found to be a useful orientation device in the in-service training activities in the Long Beach Schools, where classroom personnel have been involved in the local testing program.

Dr. Thompson is Supervisor of Research for the Long Beach Unified School District, a position he has held for ten years. Before coming to this position he had experience in elementary, secondary, and college teaching, in college placement, and in school administration and research. Dr. Thompson received the Ph.D. degree from the University of Minnesota in 1942, and was Associate Professor at that university just before coming to Long Beach.

Yes ? No

tension; absence also of lethargy or indifference; desk or table tops clear of books, etc.; no disorder; pupil understanding of fact that on standardized tests the pupil must work independently and at moderate speed, and that one expects to find some "hard" items that most pupils can't answer; general idea of separate answer sheets if they are involved, etc.)

- ☐ ☐ ☐ 7. Do I understand and accept (and do I help my associates to understand and accept) this statement by Professor Lee J. Cronbach: "A test is necessarily a frustrating experience, since it is designed to include many items which the student will fail . . . the task of the tester is to make frustration mild."?
- ☐ ☐ ☐ 8. Do I refrain from any special coaching on the subject matter of the test?
- ☐ ☐ ☐ 9. Before I give a test for the first time, do I rehearse to the extent of reading aloud all the directions and noting the timing for each section?
- ☐ ☐ ☐ 10. Before starting to test, do I make sure that I have an adequate supply of tests and an extra supply of pencils, erasers, and scratch paper if needed?
- ☐ ☐ ☐ 11. If I give a test requiring the use of a stop watch, do I make any check before testing time to see that the stop watch is working accurately?
- ☐ ☐ ☐ 12. Before the test period begins, do I try to anticipate the questions the pupils will probably ask during the minutes just before they get the signal to begin? Do I have answers ready—answers from the manual or, if necessary, from careful reasoning? (*Example*: "Should we skip the hard questions, or should we guess at the answers?")
- ☐ ☐ ☐ 13. Before starting to test, do I check the seating arrangements to see that the pupils (including the left-handed ones) can handle the test materials comfortably? Are pupils seated in such a way as to encourage self-reliance?
- ☐ ☐ ☐ 14. Before starting to test, do I check to see that the physical aspects of the testing room are satisfactory (heat, light, ventilation, etc.)?
- ☐ ☐ ☐ 15. Before the testing period, do I make arrangements so that pupils being tested won't be interrupted by administrative announcements, fire drills, visitors, etc.? Before I begin the test, do I also put a sign on the door (e.g., "TESTING—DO NOT DISTURB") to prevent unnecessary interruptions?

Yes ? No

- ☐ ☐ ☐ 16. Before a testing period in which separate answer sheets are to be used, do I examine the booklet and the answer sheet to determine whether the questions in the booklet are in perfect alignment with the corresponding answer spaces on the answer sheet? Within the limits allowed by the test manual, do I alert pupils to the fact that the answer spaces don't line up exactly with the questions—if they don't?
- ☐ ☐ ☐ 17. Before giving a machine-scorable test, do I check the test booklets to see that they are clean and usable?
- ☐ ☐ ☐ 18. If pupils are to take a machine-scorable test for the first time, do I make sure that a practice session covering the manipulation of separate answer sheets and the method of marking answers has been held *before* the day of testing arrives?
- ☐ ☐ ☐ 19. Before testing begins, do I check to see whether pupils are properly motivated? If I'm testing older pupils, do they know why the tests are given and do they care about the results?
- ☐ ☐ ☐ 20. When testing young children, do I give them a chance to go to the toilet and get a drink before starting the test?
- ☐ ☐ ☐ 21. Do I make sure that pupils have removed *all* extraneous books, pencils, magazines, papers, etc., from the tops of their desks and tables?
- ☐ ☐ ☐ 22. Before I administer a test, do I understand why the test is to be given?

B. DURING the Testing

- ☐ ☐ ☐ 23. If all pupils are not present when the class period begins, do I delay the start of the test a minute or two in order to reduce the interruption caused by the entrance of the tardy?
- ☐ ☐ ☐ 24. Do I try to be matter-of-fact in my manner so that the pupils will understand that the testing experience "is neither a crisis nor a lark"?
- ☐ ☐ ☐ 25. When I give the group necessary directions, do I expect them to be followed?
- ☐ ☐ ☐ 26. Without being rigid or stilted in manner, do I follow the test authors' directions *exactly*?
- ☐ ☐ ☐ 27. Do I refrain from trying to recite test directions from memory?
- ☐ ☐ ☐ 28. Do I read the directions slowly, in a clear voice loud enough to be heard in all parts of the room, and do I give proper emphasis to key words and phrases?

Yes ? No

- ☐ ☐ ☐ 29. Within the limits allowed by the test manual, do I supplement oral instructions with blackboard or chart illustrations for filling out basic data, etc.?
- ☐ ☐ ☐ 30. If a test is to be machine-scored, do I check to see that *every* pupil uses the necessary type of special pencils for all parts of the test?
- ☐ ☐ ☐ 31. Do the room teacher and I refrain from exchanging semi-audible remarks during the testing? Does the room teacher also refrain from writing on the blackboard?
- ☐ ☐ ☐ 32. Do I allow pupils the precise amount of time which the directions specify?
- ☐ ☐ ☐ 33. Within the limits of the test directions, do I relieve pupils' tensions over the amount of time available for a long test by posting the *ending* time on the blackboard?
- ☐ ☐ ☐ 34. During the pupils' working period, do I move quietly around the room in order to note any individual's unusual behavior, to provide a replacement for a defective pencil, to answer those questions which the directions permit answering, to maintain order, and to encourage a good atmosphere for quiet work? Do I also avoid gazing over any pupil's shoulder so long that he becomes self-conscious?
- ☐ ☐ ☐ 35. Even though a test is easily administered and has long working periods for the pupils, do I refrain from the temptation to step out into the corridor (or the cafeteria, or library, etc.) for a minute or two?
- ☐ ☐ ☐ 36. Before collecting machine-scorable answer sheets and test booklets, do I ask the pupils to erase any stray marks or words on the materials? Do I ask pupils to blacken the answers well?
- ☐ ☐ ☐ 37. When the test is ended, do I collect materials promptly and completely?

C. AFTER the Testing Period

- ☐ ☐ ☐ 38. Before sending a set of answer sheets to the Scoring Center for machine-scoring, do I take these minimum steps: inspection of papers to see that they are scorable; removal of any paper clips or rubber bands; careful packaging so edges of answer sheets are protected?
- ☐ ☐ ☐ 39. When an individual pupil's behavior during a test strongly suggests that his score will be an invalid measure, do I make a note to that effect on his completed paper and do I arrange for his retesting?

- | Yes | ? | No | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 40. Do I arrange for "pick-up" testing for those who miss tests because of absence? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 41. If tests are to be hand-scored by someone else, do I give the scorer an adequate explanation as to best procedure? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 42. Do I re-score a sample of the tests that others have scored (whether scored by hand or machine) before I proceed to record or use the test data? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 43. If there are part scores to be added to arrive at a pupil's total score, do I check the accuracy of my addition (or of the person who has done the adding)? If scoring involves the use of pupils' ages, do I check the accuracy of the age data? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 44. If the test results are to be recorded on pupil folders by someone else, do I review with my assistant the essential data that should be recorded? (Usually these are the essentials: title and form of test; date of testing; norm; raw score earned and its equivalent value in terms of the norm.) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 45. If the test results are to be used by someone else (e.g., a teacher), do I prepare an easy-to-understand summary, such as a ranking from high to low of the grade equivalents, percentile ranks, or aptitude indexes of all pupils in a classroom group? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 46. Do I use judgment and discrimination when pupils ask: "How did I do on the test?" In such fields as arithmetic computation and language usage, do I help the pupils analyze the results on their scored papers—not in terms of norms but in terms of <i>correct</i> responses and <i>incorrect</i> responses? |

D. AT ALL Times

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 47. Do I avoid making a statement like the following to any pupil or parent: "Your (Helen's) I.Q. is 97."? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 48. Do I stress with my associates the axiom that a standardized test must be given under <i>standard</i> conditions if it is to provide reliable information? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 49. Do I meet periodically with my principal to review my work in the administering of standardized tests? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 50. Do I understand and accept the fact that giving group tests properly is a worth-while activity and that I can make a contribution to instruction, guidance, and school administration by obtaining valid and dependable scores for individual pupils? |

(Continued on Page 75)

Rorschach Personality Factors and College Achievement

JANET E. BLECHNER and HAROLD D. CARTER

In view of the abundance of evidence (4, 5, 8, 9, 10)¹ that college students' grades correlate only about .50 with intelligence, as measured by a variety of objective devices, a question has been raised concerning the extent to which personality factors may contribute to college achievement. Does it make any difference in his success in college if a student tends to be quiet and contemplative, rather than of a more outgoing nature? Does he make better grades if he tends to look at larger issues than if he concerns himself more with detail? Does a more compulsive person succeed better than one whose organizational approach is more flexible?

Grace Thompson (12), in an attempt to answer some of these questions, studied a group of Santa Barbara College students and found no reliable differences in the Rorschach test results of achievers and non-achievers, although she did formulate the general conclusion that Rorschach personality pictures of the achievers seemed characterized by more introversion and greater conformity.

The present paper is a report of a further investigation of the problem, using larger numbers of students, and a somewhat different technique.

The Method

The Rorschach Ink Blot Test was administered to 362 students, in three classes in beginning Educational Psychology, in the University of California. The procedure of administration was that standardized by Harrower-Erickson (11). The only alteration of the standard procedure was to change

1. The numbers in parentheses refer to studies cited in the bibliography.

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Harold D. Carter is Professor of Education at the University of California at Berkeley, where he has worked since 1937. He was previously a research associate in vocational interest research at Stanford University. He obtained his doctorate from the University of Minnesota in 1930.

This article is a digest of a report of original work done in 1954 at the University of California at Berkeley.

the time of exposure to two minutes each for original and inquiry presentation of the designs. Justification for the change was established in a preliminary study by one of the writers (1).

All the test papers were fully scored by the Klopfer method, and scores for W and D (main location areas) and M, F, and Sum C (main determinant areas) were evolved by transformation of the raw numbers of responses into standard score form. Achievement, as represented by grades in the course, was objectively measured by summation of all mid-term and final examination scores. These also were transmuted into standard score form.

Results

Table I presents Pearson product-moment coefficients of correlation between the Rorschach test results and the grades achieved in the course. The data clearly indicate lack of significant relationships between the specific personality factors measured by the Rorschach test and the objective measures of course achievement.

TABLE I

Correlations between Standard Scores for Rorschach Personality Factors and Grades in a College Course.

	<i>Rorschach Personality Factors</i>				
	<i>W</i>	<i>D</i>	<i>M</i>	<i>F</i>	<i>Sum C</i>
r with Course Grade	.05	.09	.05	.05	.15

The W and D scores refer to the location area of the blots chosen by the subject in forming his concepts, and they represent in general the manner in which he organizes his intellectual approach to life, according to currently-accepted Rorschach interpretations. The person who forms concepts on the basis of the whole blot tends to organize better, to see more broadly in his evaluations. The person utilizing the usual smaller detail areas of the blots (D) tends to concentrate on narrower problems and may handle successfully the petty but necessary problems of existence, while missing, or never approaching, larger issues or the making of long-range plans.

The M score reflects, in general, the disposition of the individual as reflective, oriented toward introspection, within limits as being higher in intelligence, possibly as possessing greater inner resources and capacity for creativity. This orientation would be, in general, in opposition to that of

the person responding more to the color areas (Sum C). The latter individual might be characterized as having a more outgoing personality, more stimulated by contact with the outside world of events and people than by his inner nature.

The F score reflects, broadly, the control aspects of the personality, and it indicates by its dimensions the capacity of the individual to control his feelings, his response to stimulation—whether from within or from without. The F quantity ranges from low scores which indicate lack of control, to adequate scores reflective of good balance, to the inordinate amounts of control which characterize highly restrictive, possibly compulsive personalities. Theoretically, the persons with too high F scores are prevented, by excessive inhibitions, from utilizing their capacities for creativity, or for response to other people.

The Rorschach test, then, is concerned with personality characteristics which would seem likely, at first glance, to have some significance in relation to school adjustment in general, and to achievement as measured by marks, as one specific aspect of school adjustment.

Summary and Conclusion

The Group Rorschach has been used in a study of 362 college students as a device for measuring certain personality characteristics. Correlation analysis has shown almost a complete lack of relationship between objective measures of course achievement and various personality factors as measured by the Rorschach procedure.

The Rorschach test provides measures to indicate whether the student has a whole-idea or a narrow-detail approach to intellectual problems, whether he has an introspective or an outgoing personality orientation, and whether his personality is inadequately controlled, sufficiently regulated, or characterized by excessive inhibition. These measures, as investigated in this study, appear to have only chance relationships with objectively-measured success in a college course.

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A Method of Validating Reactions of Kindergarten Children to Storybooks Read by Teachers

DAN CAPPA

In recent years, the interest in children's literature has grown with amazing rapidity. With this interest has come a vast amount of children's books. Today there are so many books for children that it is difficult to evaluate them. One of the standards which has always served in guiding the selection and evaluation of children's stories has been the satisfaction experienced by the adults themselves as they read or told stories to children, and they have rated them accordingly. Consequently, many of the lists of books for young children are not those that the children themselves would choose. Storybooks which are rated solely by adult standards of enjoyment may be far above the child's level of appreciation and understanding. In addition, adults and children may enjoy the same book, but for a different reason.

After the books have been selected on the bases of literary merit and suitable content, the most satisfactory way of evaluating storybooks from the standpoint of appeal to kindergarten children is to observe how they actually react to the books. This article describes the procedure used by the writer in validating the reactions of over 2500 kindergarten children in the schools of Contra Costa County, California, to the appeal of 451 storybooks read to them.

Validation of the questionnaire returns used in this investigation was fundamental to any interpretation of the reactions of kindergarten children to storybooks read by teachers. Three areas of validation were selected for treatment: (1) teacher-supervisor one-book validation; (2) teacher-supervisor thirty-book validation; and (3) teacher-child validation.

Teacher-Supervisor One-Book Validation

Because of the importance of the one-book validation, it was felt that the most reliable results could be obtained by securing appraisals of the

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children's responses from a supervisory group of competent judges and then comparing them with the teachers' appraisals. Thirteen supervisors from the Contra Costa County Schools Office were selected.

Thirty teachers, selected geographically to give a representative cross section of types of schools and communities in the county, participated in the one-book validation. A total enrollment of about 1,037 children listened to the presentation of the storybook.

One book, *Johnny Mapleleaf*, was chosen to be presented in each of the 30 classes. The storybook was read by the teacher to the children in the presence of a supervisor. Immediately after the reading, the teacher and the supervisor each filled out independently all the sections of the questionnaire except the sections on spontaneous responses. No discussion was held between the teacher and the supervisor regarding the children's reactions before filling out the questionnaire. Ratings were then assigned both to the teacher's appraisal and to the supervisor's appraisal of the children's reactions to the storybook.

A storybook was rated *A* if it was enjoyed by both boys and girls. It was a book enjoyed by all the children with no observed negative reactions. A storybook was rated *B* if it was enjoyed by most of the children with a number of negative reactions from a few children. A storybook was rated *R* if it was not enjoyed by most of the children and it produced many negative reactions.

As a phase of the investigation, an evaluation of the storybooks classified according to ratings was made.¹

In comparing the 30 assigned ratings of the teachers with those of the supervisors, it was necessary to arrange the data so that some appropriate means of establishing a correlation or a relationship was possible. Because the variables (the three ratings of *A*, *B*, and *R*) could be put into more than two classes or categories, it was logical to use the coefficient of contingency for the presentation of relationship between the teachers' and supervisors' assigned ratings.

Teacher-Supervisor Thirty-Book Validation

The procedure for the thirty-book validation was similar to that for the one-book validation except for the selection of the thirty books. These thirty books were selected after the third exchange of book packets. From the questionnaires sent in on the storybooks read, ten books assigned an *A* rating, ten assigned a *B* rating, and ten assigned an *R* rating were chosen. Thirty different classes with a total enrollment of about 1,008 children listened to the reading of the storybooks. Twenty-two teachers and 13

¹ See Dan Cappa, "Storybooks that Appeal to Kindergarten Children," *Elementary English*, January 1954, pp. 30-34.

supervisors cooperated in this phase of the validation. For the presentation of relationship between the teachers' and supervisors' assigned ratings, the coefficient of contingency was used.

Teacher-Child Validation

The purpose of this validation was to discover the relationship between the stated reactions of the children and teacher's appraisal of the children's reactions. Ten teachers and 30 groups of children participated. The individual returns from the children totaled about 857. Each teacher used three different kindergarten storybooks with three groups of children. The 30 books were of kindergarten level, but not necessarily the same ones used to obtain the original group responses. The procedure for the teacher-child validation was similar to that for the others, except that individual reactions were obtained from the children on whether they liked or disliked the illustrations, story content, information content, humor, surprise element, and refrain. Each child was given a very simple check sheet and directed to make an X if he liked the source of appeal and a circle if he did not. The sheet was marked immediately after the teacher presented the storybook. The teacher directed the marking by following the procedure on a direction sheet. When the children in the group completed marking their sheets, the teacher made an appraisal of the children's reactions by checking the Sources of Appeal section on his questionnaire.

A tetrachoric correlation was calculated between the stated reactions of the children to each one of the six sources of appeal of the 30 selected books and the teachers' appraisals of the reactions of the children to each source of appeal.

The statistical evidence of this investigation yielded a high degree of relationship between the data in the teachers' recordings regarding the children's responses and the findings on corresponding items in the three validating procedures used.

During the 1954-55 school year, 75,607 persons completed driver training courses in 1,115 high schools, according to *Research Report No. 54* of the Traffic Engineering and Safety Department of the American Automobile Association. The average number of students trained per school was 68, and the average cost per student was \$33.32. This was based on an average annual salary for teachers concerned of \$4045.83. Students averaged 73.1 miles of driving in the behind-the-wheel part of the training at a cost of \$3.88 per student, including insurance. Additional details are given in the *Report*, which may be obtained from AAA, 1712 G Street, N.W., Washington 6, D.C.

Factors for Predicting Success In Beginning Algebra

NORMAN F. FROST and LOUIS GRANT BRANDES

The purpose of the study was to provide guide lines for the elementary school vice-principals, counselors, and advisers who program pupils into the ninth-grade mathematics courses of beginning algebra and general mathematics at the Encinal High School, Alameda.

A number of years ago, those responsible for the programming and scheduling of incoming pupils at Alameda High School became concerned about the large numbers of pupils who had little or no aptitude for beginning algebra being programmed for this subject. Not satisfied with the instruments available for measuring the arithmetical ability of prospective pupils, Mr. Elvin Ellifson, counselor in charge of testing, took the leadership in constructing an arithmetic test that would provide a meaningful measure of achievement in arithmetic for pupils of the Alameda Unified School District.

Operation of the Program

During the fall semester of 1948, Mr. Ellifson listed examples of all the different kinds of basic arithmetic items covered in the elementary schools of the district and in the ninth-grade general mathematics classes of the high school. Over one hundred different items were listed. These items were organized into a work assignment for an incoming class of some three hundred ninth-graders. The results of an item analysis of this data served as a basis for the construction of a fifty-item test. This test, known as the Arithmetic Test, was to serve as a guide for programming pupils into the ninth-grade courses of general mathematics and beginning algebra. Several forms of the test were constructed. A score of twenty correct items on the test, given during a test period of thirty minutes, was established as a

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minimum standard of achievement for programming into the course of beginning algebra.

In 1952, Encinal High School was organized as a second high school in the district. As a part of the programming plan for ninth-graders in Encinal High School, the Arithmetic Test has been administered to all eighth-graders of the three feeder elementary schools. The results of these tests, along with eighth-grade arithmetic marks, IQ test scores, and teacher recommendations, have been the basis for programming pupils into the beginning algebra and general mathematics courses. To be recommended for algebra, pupils were expected to score above the median for their class on the Arithmetic Test, possess intelligence test scores of average or above, have earned average or better marks in arithmetic during the current year, and be recommended for algebra by their teachers. Where parents insisted, however, pupils were programmed into algebra even though they did not meet the stated requirements. Pupils not meeting the requirements, and not "pushed" into algebra by their parents, were programmed into the 9th-grade course of general mathematics, the content of which consisted primarily of remedial arithmetic.

Evaluation of the Program

After three years of operation with the described programming plan, it was felt that sufficient data was available at Encinal High School to evaluate the programming policy.

Data. The data was obtained from the permanent record cards of pupils who had been enrolled for one or more years in Encinal High School, had completed the eighth-grade in one of the three elementary schools feeding Encinal High, had enrolled in the course of beginning algebra at Encinal High, and had recorded scores for a form of the Arithmetic Test and/or the Otis "A" Intelligence Test. Thus, the available predicting data consisted of (1) Arithmetic Test scores, (2) Otis "A" Intelligence Test scores, and (3) eighth-grade arithmetic marks.

Procedure. The predictive factors, namely, the results of the Arithmetic Test, the Otis "A" Intelligence Test scores, and the eighth-grade arithmetic marks, were correlated with success in algebra using the Pearson product-moment method. For the purpose of the correlations, algebra marks of "A," "B," "C," "D," and "F" were given numerical values of "5," "4," "3," "2," and "1," respectively.

Distribution tables were developed for the purpose of arriving at minimum recommending scores for success in algebra as indicated by the results of the Arithmetic Test, Otis "A" Intelligence Test scores, and eighth-grade arithmetic marks. For the purpose of the study, final marks of "D" and "F" in algebra were considered as failing. The tables compared the results of the Arithmetic Test, Otis "A" Intelligence Test scores, and eighth-grade arithmetic marks, respectively, with success or failure in beginning algebra.

Results of the Study

The resulting correlations and the distribution tables were analyzed in terms of findings reported in the literature and of the purpose of this study. Conclusions were formulated. The results of the study are tabulated as follows:

TABLE I

Correlation of Predictive Factors with Success in Algebra

Predictive Factors	Correlations	Number of Cases
Arithmetic Test Scores	.54 \pm .05	108
I.Q. Test Scores	.51 \pm .05	118
Eighth-grade Marks	.15 \pm .05	132

TABLE II

Arithmetic Test Scores as Related to Success and Failure in Algebra

Score	Number	Passing		Failing	
		Number	Per Cent	Number	Per Cent
30 and up	33	33	100	0	0
28-29	9	8	89	1	11
26-27	11	8	73	3	27
24-25	10	10	100	0	0
22-23	5	5	80	1	20
20-21	11	5	45	6	55
18-19	5	2	40	3	60
16-17	2	1	50	1	50
14-15	4	1	25	3	75
12-13	6	1	17	5	83
11 and below	12	0	0	12	100
Total	108	73	68	35	32

Conclusions

1. The Arithmetic Test, with a correlation to success in beginning algebra of .54 \pm .05, is the most valid of the three predicting factors for programming pupils into beginning algebra classes at Encinal High School. This is followed by the Otis "A" Intelligence Test scores with a correlation of .51 \pm .05. The eighth-grade arithmetic marks are the least valid with a correlation of .15 \pm .05.

TABLE III

I.Q. Test Scores as Related to Success and Failure in Algebra

Score	Number	Passing		Failing	
		Number	Per Cent	Number	Per Cent
Above 110	51	51	100	0	0
107-109	9	8	89	1	11
104-106	8	8	100	0	0
101-103	12	9	75	3	25
98-100	10	8	80	2	20
95-97	5	4	80	1	20
92-94	7	2	38	5	72
89-91	4	1	25	3	75
Below 89	12	0	0	12	100
Total	118	91	77	27	23

TABLE IV

Eighth-Grade Marks as Related to Success and Failure in Algebra

Mark	Number	Passing		Failing	
		Number	Per Cent	Number	Per Cent
"A"	35	27	77	18	23
"B"	56	44	79	12	21
"C"	41	23	56	18	44
Totals	132	94	71	38	29

TABLE V

Percentiles

Percentile	I.Q. Scores	Arithmetic Test	Eth-Grade Marks
75th	119	31.5	"A"
50th	106	26.0	"B"
25th	93	19.5	"C"

2. Pupils scoring less than 22 on the Arithmetic Test should be discouraged from taking beginning algebra; the chances of these pupils earning a satisfactory mark in algebra (a grade of C) is less than 50 per cent.

3. Pupils with an Otis "A" Intelligence Test score of less than 95 should be discouraged from taking beginning algebra; the chances of these pupils earning a satisfactory mark in algebra (a grade of C) is less than 50 per cent.

4. While the value of eighth-grade arithmetic marks is not particularly significant, it is obvious that pupils that have earned a mark of "A" or "B" have a greater opportunity for success in beginning algebra than those pupils that have earned a mark of "C." On the basis of this evidence it is suggested that pupils with eighth-grade marks of "C" or less not be programmed into beginning algebra.

5. Eighth-grade pupils unable to score more than 15 on the Arithmetic Test who have an Otis "A" Intelligence Test score of less than 95, and have not earned a mark of "A" or "B" in eighth-grade arithmetic, have virtually no chance of earning a satisfactory mark in algebra (a grade of C).

6. It is interesting to note that a locally constructed arithmetic test provides a measure of ability in arithmetic and a predicting factor for beginning algebra that is just as significant as any of the similar commercially distributed standardized tests; it has the added advantage of meeting the range of materials covered by the schools of the local school district.

Note: Those interested may secure copies of both forms of the Arithmetic Test by writing the authors at Encinal High School, Alameda, California.

More than 100 nationally-known leaders in business, labor, government, education, guidance and personnel relations have been scheduled as speakers and panelists at a four-day convention of the American Personnel and Guidance Association at the Shoreham and Sheraton-Park Hotels in Washington, D.C., March 25 to 29.

Theme of the convention is "Guidance and National Policy." However, a score of other topics of special interest to guidance and personnel workers are on the agenda. Among them are automation, juvenile delinquency, rural youth, the older worker, parent-child-teacher relationships, school and college counseling and many others.

The highly-gifted student—at the grade school, high school and college level—will be the topic of three convention sessions, featuring A. Harry Passow, Columbia University Associate Professor of Education, and Director of its Talented Youth Project; Helen Fisk, Executive Director of the Western Personnel Institute; Arno Jewett, Specialist in Language Arts at the U.S. Office of Education, and others.

Factors Involved In State Educational Development

RICHARD E. SCHUTZ

It is commonly recognized that school systems differ greatly on almost any basis of comparison. While educators frequently make value judgments concerning the quality of school systems, no satisfactory technique is available for obtaining quantitative measures of educational development. Comparisons among the states have frequently been made on the basis of index numbers (3). However, the variables used in computing the indices have been arbitrarily chosen and have no demonstrated validity.

In recent years the method of factor analysis has been extended as an appropriate technique for investigating complex social and cultural constructs comparable to educational development. The purpose of the factor analytic method is to determine the relatively small number of dimensions or factors presumed to underlie the domain under investigation. After these factors have been identified with certainty, it is then possible to go on to develop an appropriate scale to obtain quantitative measures of the construct in question.

This paper presents the results of a factor analytic study of the dimensions underlying educational development. The study was of an exploratory nature to determine the forces operating within state school systems. The dimensions therefore are strictly applicable only at the state level. It is very possible that additional factors or a somewhat different factor pattern may underlie local or regional subdivisions. Further studies will be necessary to answer this question and to verify the factors obtained in the present study. A great deal more work must be done before we can begin to formulate general dynamic laws of educational development. The results of the study, however, suggest the distinct possibilities of the factor analytic method in this area of research.

Procedure

Thirty sociological, economic, and educational variables were selected in light of the writings of educational theorists and the results of related quantitative studies. Data were obtained on each of the variables for the

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forty-eight states as of 1950. The raw data scores were normalized and the 435 Pearson product-moment intercorrelations computed. The factors were extracted by the complete centroid method and rotated to a stable simple structure of four oblique factors using a combination of analytical and graphical methods.

Interpretation of the Factors

Variables with loadings significant at the .01 level are presented in Tables I-IV. The variables are listed in their order of importance on each factor. A negative loading indicates that a state which ranked high on this factor would rank low on the variable, e.g., a hypothetical state which ranked high on Factor I would have few teachers in one-room schools (variable 6).

The nature of the factors must be inferred from the highly loaded variables on each. The names attached to the factors are an attempt to summarize the common elements which seem to be involved in each dimension. Both the names and the brief verbal descriptions which follow are thus subjectively derived. While the interpretations given are felt to be most meaningful, alternative interpretations may be substituted if they seem to fit the factor pattern more closely.

TABLE I
Factor I: Urbanization

<i>Variable</i>	<i>Loading</i>
1. Large per capita income	.62
2. High teacher salary	.61
3. High proportion of urban population	.60
4. Many telephones per capita	.52
5. High amount of schooling completed by adults	.50
6. Many teachers in one-room schools	-.48
7. Many students enrolled in agriculture courses	-.46
8. Many automobile thefts	.42
9. Many students enrolled in Latin courses	.42

The designation of Factor I as urbanization is consistent with each of the significant variables. While the factor also reflects financial capacity, wealth is usually an effect rather than a cause of urban concentration. Urbanization and financial capacity are usually given dominant consideration by every theorist concerned with educational development. The appearance of urbanization as a factor justifies this consideration, but the fact that it is only one of four factors indicates that it should not be given undue emphasis.

TABLE II
Factor II: Administrative Organization

<i>Variable</i>	<i>Loading</i>
1. Many students transported to school	.60
2. Large enrollment per school district	.56
3. Many teachers in one-room schools	-.50
4. Many students enrolled in bookkeeping courses	-.48
5. Good holding power of secondary schools	-.46
6. Many pupils per teacher	.45

The pattern revealed by Factor II applies very well to the reorganized or consolidated school district organization in which small districts have been combined to serve the educational needs of the area more effectively. This type of organization tends to eliminate the one-room school and promote the development of union schools with larger classes. In these characteristically sparsely populated districts many students must of necessity be transported to school. Since such a district is typically rural, the lack of interest in commercial subjects such as bookkeeping is to be expected.

TABLE III
Factor III: Intellectual Climate

<i>Variable</i>	<i>Loading</i>
1. Large Negro population	-.58
2. High literacy	.57
3. Large proportion of home ownership	.54
4. Many library borrowers	.43
5. Many students enrolled in Latin courses	-.40
6. Large resident college enrollment	.38

The dimension defined in Factor III resembles Thorndike's "goodness of living" pattern (4). The factor includes many of the variables that theorists usually have in mind when they speak of "educational progress" and reflects the middle-class value system in our culture. If the factor should be accepted as corresponding to "progress," the study reveals that educational change proceeds along at least three other dimensions besides that of progress.

TABLE IV

Factor IV: Technological Advances and Lagging Social Institutions

<i>Variable</i>	<i>Loading</i>
1. Many families changing residence	.74
2. Many automobile thefts	.66
3. High population density	-.63
4. Large membership in National Education Association	.51
5. High amount of schooling completed by adults	.48
6. Many homes with television	-.42
7. Large private and parochial school enrollment	-.47
8. Large public school enrollment	.40

The diversified list of variables represented in Factor IV reflects a pattern of instability and is suggestive of a region which has experienced recent industrialization. However, the pattern is not strictly an urban one. The picture is rather that of an area which has few centers of population with much of the territory remaining rural or being uninhabitable in the first place. Such an atmosphere of advancing technology would promote the emphasis on public education revealed by the high amount of schooling completed by the adult population and the large public school enrollment. On the other hand, the large number of automobile thefts reveals the inevitable lag in social institutions which accompanies technological gains.

TABLE V

Correlation Between the Factors

<i>Factor</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	.14	-.43	.65
II		.50	.22
III			-.10

Relationship Between the Factors

It is evident from Table V that some of the factors are rather highly correlated. It might be anticipated that urbanization should be positively related to advancing technology, but the rather high inverse relationship between urbanization and intellectual climate is somewhat less expected. Factor I appears to characterize a large metropolitan district, while Factor III typifies a suburban settlement. Although population density and financial well being are usually considered to be associated with the high

socio-economic level reflected in the third factor, the findings suggest that this generalization is not entirely accurate. For urbanization tends to bring in its wake overcrowded slum conditions which force the higher social classes to outlying suburban districts.

It is interesting to note the high positive relationship between intellectual climate and administrative organization. The relationship suggests that an "intellectual climate" is conducive to advanced organizational practices. This offers some encouragement to those who would like to believe that it will be possible to improve the quality of education in this country as we are able to produce a population which has received more education than have past generations.

The remaining relationships are much lower and require no discussion, beyond noting that the direction of the relationship in each case is logically consistent with the interpretation of the factors given above.

Conclusions

From the standpoint of statistical economy an advance has been made when it is possible to describe whatever a group of thirty variables are measuring in common by using only four factors. The study should also caution educational theorists against the "halo" effect of assuming that certain qualities, such as the educational "progress" involved in Factor III and urbanization involved in Factor I, always go together. The study demonstrates that such factors can vary independently.

A single factor analysis by itself does not provide conclusive evidence concerning the factors underlying a given domain. The factors isolated here will have to be confirmed and clarified in studies at different time periods and at different administrative levels before they can be used with any real assurance to describe educational development. A follow-up study using a population of school districts within a state or a sample of districts within a geographical region, which included the highly loaded variables obtained in the present study as "markers," would be expected to yield a somewhat comparable factor pattern (5: 360-376). Furthermore, studies at the local or regional level may be expected to isolate additional dimensions which likely exist in this complex domain.

After the dimensions underlying educational development have been identified with certainty through further investigation, the way will be clear to develop refined measures of the factors in order to obtain quantitative descriptions of educational development.

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(Continued on Page 94)

Attitudes of Elementary-School Teachers Toward Extra-Curricular Duties

WILLIAM B. DRISCOLL

This study attempts to determine both the extent and nature of the effect of extra-curricular duties on teacher morale. For the purposes of this study extra-curricular duties may be defined as those duties that are a regular and planned part of the school day, but not necessarily a part of the academic program. In this article, morale will refer only to attitude brought about by the effect of participating in extra-curricular duties and projected throughout the personality of the teacher.

Procedure

The questionnaire technique was used for gathering the pertinent data for this study. An attempt was made to select those duties that are fairly common to elementary schools. Those chosen involved activities related to the following: (1) athletic supplies, (2) audio-visual aids, (3) cafeteria, (4) faculty social committee; (5) flower decorations, (6) hall decorations, (7) hall duty, (8) instructional supplies, (9) library, (10) noon games, (11) principal's advisory committee, (12) student body, (13) teachers' lunchroom, (14) textbooks, (15) traffic reserve, (16) yard cleanup, (17) yard duty.

The first response was a "yes" or "no" related to functioning at that duty. That is, was, or was not, this particular duty a current responsibility of the responding teacher?

The second response called for checking one of five descriptive words, (1) enjoy, (2) content, (3) neutral, (4) tolerate, (5) loathe, which would reveal differing feelings among the responding teachers toward particular duties.

Next, the teachers were asked to check, or write in, a statement revealing why they felt as they did toward the specific duty in question.

Finally, the teacher checked, or wrote in, a statement explaining how he was assigned to the duty—by the principal, by a committee of the staff, by voluntary selection, or by other methods of assignment.

Responses were divided into three general classifications. Those responses checked as "enjoy" or "content" were classified as positive

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responses. Those checked as "neutral" were classified as neutral, or indifferent responses. Those responses checked as "tolerate" or "loathe" were considered negative responses.

With a plan such as this, it was possible to determine: (1) how teachers felt about the extra-curricular program generally, (2) how they felt about particular duties, and (3) similarities and differences in individual faculty attitude.

Teachers were assured of their anonymity as responding participants since signatures were not required, and principals agreed not to examine returned questionnaires.

The Group Studied

The group consisted of the faculties of seven large, widely separated elementary schools of the Oakland (California) Unified School District. The questionnaires were completed by teachers of kindergarten through sixth grades only. A response was received from one hundred fifty-three teachers, or approximately fourteen per cent of the regularly employed kindergarten through sixth grade teachers of this district. This group was 80 per cent of those to whom the questionnaire was submitted.

The Findings

Several important facts were pointed up by this study. They are as follows:

1. The typical teacher contributing to this study had multiple extra-curricular duties. The average number of such duties per teacher was 4.3.

2. Approximately 50 per cent of each school faculty and, therefore, 50 per cent of the total number of teachers involved in the study, were concerned with the same four duties. That is, these four duties were common to each school and, typically, required the efforts of approximately one-half of each faculty. These duties were: (1) yard duty, (2) yard cleanup, (3) hall duty, and (4) hall decoration.

3. Duties which scored a high positive feeling are those related to: (1) traffic reserve, (2) faculty social committee, (3) library, (4) principal's advisory committee, (5) instructional supplies, (6) hall decoration, (7) flower decoration, (8) audio-visual committee, (9) textbooks, and (10) teachers' lunchroom. Duties with the greatest negative score are those relating to: (1) athletic supply, (2) noontime games, (3) student body, (4) yard cleanup, (5) yard duty, (6) hall duty, and (7) cafeteria. The following four duties, although appearing above in either the positive or negative classifications, showed a strong tendency toward "neutral" type feelings. That is, their respective positive or negative percentages, while sufficient to place them in either of the extreme categories, were balanced by a high percentage of "neutral" responses indicating a somewhat general attitude of teacher apathy toward them: (1) hall duty, (2) textbooks, (3) instructional supplies,

and (4) athletic supplies. A general statement as to teacher attitude toward all seventeen duties with which the study was concerned is shown in the following list. Duties are scaled downward, in descending order of positive feeling: (1) traffic reserve, (2) faculty social committee, (3) library, (4) principal's advisory committee, (5) instructional supplies, (6) hall decoration, (7) flower decoration, (8) audio-visual aids, (9) textbooks, (10) teachers' lunchroom, (11) athletic supplies, (12) noontime games, (13) student body, (14) yard cleanup, (15) yard duty, (16) hall duty, and (17) cafeteria.

TABLE I

**Extra-Curricular Duties Listed in Descending Order of Preference
on the Basis of Positive Responses**

<i>Duties relating to:</i>	<i>Per Cent of Positive Response</i>
1. Traffic reserve	91.6
2. Faculty social committee	82.8
3. Library	77.8
4. Principals Advisory Committee	77.0
5. Instructional supplies	70.6
6. Hall decorations	69.5
7. Flower decoration committee	69.3
8. Audio-visual aids	69.2
9. Text books	63.7
10. Teachers' lunchroom	60.0
11. Athletic supplies	57.1
12. Noon games	51.8
13. Student body	50.0
14. Yard cleanup	45.7
15. Yard duty	43.6
16. Hall duty	34.1
17. Cafeteria	21.3

4. A positive correlation was observed between teacher experience and degree of positive reactions toward extra-curricular duties. Teachers having ten or more years of experience exhibited a higher degree of positive feeling toward extra-curricular duties than did teachers with three or less years experience—this, in spite of the fact that the more experienced teachers carried a greater extra-curricular duty load. Approximately four times as many "loathe" responses were received from the three years or less experience teachers than from the ten or more years experience group. Amplifying further, this difference was discovered to be based not on a lesser number of positive responses from the zero to three years experience group than

from the ten or more years experience group, but rather, on the greater number and variety of *negative* responses turned in by the zero to three years experience group.

5. In the phase of the investigation concerned with the methods by which the extra-curricular duties were assigned, the writer discovered that an overwhelming percentage of such duties were assigned by the principal. In fact, this method of assignment is so prevalent as to make a consideration of any other means of assignment or selection impractical for the purposes of this study.

6. Total teacher experience per school showed no correlation with an individual school's attitude toward extra-curricular duties. In other words, the aggregate amount of teacher experience at a particular school had no bearing on the placement of that school on a positive-negative attitude scale.

Conclusions

It is logical to assume that the extra-curricular program has become a necessary part of the whole school program. Teachers, being responsible for these duties, should have a healthy, positive attitude concerning them. This is, in fact, essential from a morale standpoint.

Since these duties are, by very definition, *extra*, it may be assumed that there is a selling job to be performed here. Teachers must be convinced of the necessity and the desirability of the duty. Further, teachers should be helped, by all possible means, to minimize the distress factors that may be present in a particular duty. Continued effort should be put forth to minimize positive attitudes toward extra-curricular duties and, conversely, minimize negative ones.

This study brought to light the following principal reasons for teachers' negative attitudes toward extra-curricular duties: (1) "Takes me from my teaching duty," (2) "This function is not an educational function," (3) "Takes me from my planning period," (4) "Takes me from my leisure time," (5) "No time is allotted for this function," (6) "It is a very trying and noisy duty," (7) "It is a function that should be performed by personnel other than teachers," (8) "It is an unimportant function."

This study revealed that approximately 20 per cent of an "average" faculty expressed negative feelings toward extra-curricular duties. Another 20 per cent expressed feelings of neutrality or indifference toward these duties. Therefore, approximately 40 per cent of the teachers contributing to this survey expressed non-positive feelings toward extra-curricular duties.

Sixty per cent of the total responses received in this survey were of a positive nature.

The task, then, is in the 40 per cent non-positive area. It may be assumed that positive responses were received, in most cases, from the willing workers and morale builders of the average faculty. Conversely, it may be assumed that, in most cases, response patterns which were

predominantly negative were received from faculty members whose morale was not high and who accepted their duties only grudgingly.

In addition approximately 20 per cent of the responses from each faculty indicated a feeling of neutrality.

Teachers' "write in" responses revealed a high negative attitude toward the following duties: (1) yard cleanup, (2) yard duty, (3) hall duty and (4) cafeteria. On observing this, the writer was immediately struck with the fact that these duties possessed common elements of distastefulness. They were: (a) police-like, (b) custodial, (c) interrupted lunch or recess, and (d) had no time provided for performance of duty.

Recommendations

The following techniques are suggested to improve the morale factor as related to extra-curricular duties:

1. Planned meetings of teachers and administrator at which time the whole extra-curricular duty program is thoroughly discussed.

2. Assignment of duties in accordance with individual teacher training, background and preference.

3. Provide time for performance of the extra-curricular duties.

4. Keep accurate records of each faculty member as to accumulated time, type, rotation and performance of duty.

5. The author feels that the following factors should be investigated in schools where flagrant attitudes of negativism toward extra-curricular duties is indicated: (1) efficiency of administrator, (2) personality of administrator, (3) personality of staff, (4) presence of cliques, (5) presence of favoritism, (6) nature and character of school plant, and (7) nature and character of school neighborhood—in short, the social environment and the physical environment.

6. Another, and a broader, possibility is the hiring of non-professional help to handle some of the extra-curricular duties. Persons who possibly could be employed on a part or full time basis for duties include: (1) pre-teacher trainees, (2) interested mothers, and (3) non-professional help. Duties which particularly lend themselves to this type of program include: (1) traffic reserve, (2) audio-visual aids, (3) library, (4) textbooks, (5) yard duty, (6) noontime games, (7) cafeteria, and (8) yard cleanup.

It may well be that such a program would require the services of a certificated administrator who would have charge of the entire extra-curricular duty program. More particularly, such duties may be assigned to an administrator trainee. The supervision and performance of several extra-curricular duties would constitute a function of an administrative nature. The person charged with the responsibility of administering and performing several, and perhaps all, of the duties above mentioned, would have no help other than pupil help.

A third possibility is utilizing the service of a teacher who would act as a part time classroom instructor and part time administrative assistant in charge of a bloc of extra-curricular duties.

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(Continued from Page 88)

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Book Reviews

EDUCATIONAL ADMINISTRATION: CASES AND CONCEPTS by Cyril G. Sargent and Eugene L. Belisle

Boston: Houghton Mifflin Company, 1955. 474 pages.

Three hundred and forty-five pages of this book are devoted to 35 cases involving school administrative situations. All aspects of administration are included, from district reorganization to faculty meetings. Some of the cases are given directly from the records without changing names or locales; but most are disguised. All of them pose real problems, most of which do not seem to have any one obvious solution.

The remainder of the book is devoted to a discussion of the case study method as a means of training administrators. The authors feel that the cooperative discussion of cases that do not have set solutions is of very great value to students of education. The cases have not been selected or arranged according to concepts involved. This, the authors say, was deliberate. Experience with the use of cases in actual administrative instruction led to the conclusion that even simple cases involve applications of many concepts.

The authors say at the front of the book, "To students who use this book: May you find in your experience together much more than we as teachers can give to you." The book appears to be primarily an attempt to give the students raw material for vicarious, classroom experience in administration. However successful such an approach to teaching administration may be—and the authors feel that it is very promising—the book certainly does an excellent job of providing life-like situations for discussion.

CALIFORNIA POLITICS by Joseph P. Harris

Stanford, California: Stanford University Press, 1955. 66 pages. \$1.00.

This small book gives a realistic presentation of the way in which California politics operate. It gives a minimum amount of space to the details of government as set up by law, and a maximum amount to the details of its actual operation. Chapters include one on "Who Runs the State?" and another titled "Political Party Organizations: Official and Unofficial."

Some of the historical background of California's unique political development is given. Particularly illuminating are the descriptions of the

way in which Congressional districts have been gerrymandered and of the methods used to promote and oppose initiative measures. In fact, the book should enable Democrats to understand a little better why they do not win elections in California—although they have the majority of the votes.

The book is, however, written in an impartial manner and should be very suitable for use in high school, college, and adult education classes relating to civics and the problems of democracy.

THE SCHOOL PSYCHOLOGIST by Eli Michael Bower

Bulletin of the California State Department of Education,
Vol. XXIV, No. 12 (November) 1955.

The author is Consultant in Mental Hygiene and Education of the Mentally Retarded for the California State Department of Education's Bureau of Special Education. The publication is designed to show how psychologists employed by school districts actually function and how their services can best be used by administrators and teachers.

After a brief introduction in which it is pointed out that approximately 400 psychologists are now employed by California schools, the major part of the book is devoted to a description of how school psychologists work directly with children. This is done through the use of typical cases. The nature of the cases, the assumptions used in making studies of them, and the techniques employed are given in Chapters II through VI. In Chapter VII the results of the psychologist's work are described. This is done in a realistic way and shows that many problems cannot be solved completely or rapidly. However, an impressive amount of actual improvement in problem situations is reported.

In Chapters VIII and IX the role of the psychologist in the over-all school operation is elaborated. He is seen as an expert to whom the teacher may turn for help and as a mediator between the teachers and the parents. While this last role may be important, it seems that too little credit is given to the average teacher for professional zeal and competence. Or else too much emphasis is given to the use of psychologists as trouble-shooters employed to patch up the results of employing and retaining substandard teachers.

The remainder of the book deals with the role of the psychologist as a professional leader, particularly in the promotion of mental health in the schools. Attention is also given to the personal activities of the psychologist in his profession and its organizations. Credentialing and other technical matters are dealt with in appendices.

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